

CLAIMS

1. A method of copy protecting encoded digital data, wherein the encoded digital data has been subjected to error correcting encoding and is arranged in codewords, each codeword containing data bytes and parity values, the method comprising altering the values of the data in a plurality of data bytes in a selected codeword, to form an altered codeword, the nature of the altered values and the number of data bytes altered being chosen to render the altered codeword uncorrectable.
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2. A method as claimed in Claim 1, wherein the values of the data in at least four data bytes in the selected codeword are altered.
3. A method as claimed in Claim 1, wherein the values of the data in at least five data bytes in the selected codeword are altered.
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4. A method of copy protecting encoded digital data, wherein the encoded digital data has been subjected to error correcting encoding and is arranged in codewords, each codeword containing data bytes and parity values, the method comprising altering the values of the data in a plurality of data bytes in a selected codeword, to form an altered codeword, the nature of the altered values and the number of data bytes altered being chosen to render the altered codeword uncorrectable, and wherein one or more higher order bits of each data byte of the plurality of data bytes are altered to be representative of an unusually large magnitude, and the remaining lower order bits of each data byte of the plurality of data bytes are altered such that, on decoding, the altered codeword will generate an uncorrectable error identifying syndrome.
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5. A method as claimed in Claim 4, wherein the most significant nibble of each data byte of the plurality of data bytes is altered to be representative of an unusually large magnitude, and wherein the least significant nibble of each data byte of the plurality of data bytes is altered to generate the uncorrectable error identifying syndrome on decoding.
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6. A method of copy protecting encoded digital data, wherein the encoded digital data has been subjected to error correcting encoding and is arranged in codewords, each codeword containing data bytes and parity values, the method comprising altering the values of the data in a plurality of data bytes in a selected 5 codeword, to form an altered codeword, the nature of the altered values and the number of data bytes altered being chosen to render the altered codeword uncorrectable, and wherein the nature of the altered values and the number of data bytes altered are chosen such that, on decoding, the altered codeword will generate an uncorrectable error identifying syndrome.

10 7. A method as claimed in Claim 6, wherein the syndrome is one which, in the decoding process, causes an error locator polynomial to have no roots.

15 8. A method of copy protecting encoded digital data, wherein the encoded digital data has been subjected to error correcting encoding and is arranged in codewords, each codeword containing data bytes and parity values, the method comprising altering the values of the data in a plurality of data bytes in a selected codeword, to form an altered codeword, the nature of the altered values and the number of data bytes altered being chosen to render the altered codeword 20 uncorrectable, and wherein a corrupting vector is formed which has the same format as the selected codeword, the corrupting vector having altered values imposed on a codeword in which all of the data values are zero, and further comprising XORing the corrupting vector with the selected codeword whereby values in the selected codeword are XORed with the values in the corrupting vector 25 to form the uncorrectable altered codeword.

9. A method of copy protecting encoded digital data, wherein the encoded digital data has been subjected to error correcting encoding and is arranged in codewords, each codeword containing data bytes and parity values, the method 30 comprising altering the values of the data in a plurality of data bytes in a selected codeword, to form an altered codeword, the nature of the altered values and the number of data bytes altered being chosen to render the altered codeword uncorrectable, and wherein one or more higher order bits of each data byte of the plurality of data bytes are altered to be representative of an unusually large

magnitude, and the remaining lower order bits of each data byte of the plurality of data bytes are altered such that, on decoding, the altered codeword will generate an uncorrectable error identifying syndrome, and wherein a corrupting vector is formed which has the same format as the selected codeword, the corrupting vector having altered values imposed on a codeword in which all of the data values are zero, and further comprising XORing the corrupting vector with the selected codeword whereby values in the selected codeword are XORed with the values in the corrupting vector to form the uncorrectable altered codeword.

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10. 10. A method as claimed in Claim 8 or Claim 9, wherein a look up table containing a number of said corrupting vectors is provided, each of the corrupting vectors in the look up table being known to produce an uncorrectable error identifying syndrome.

15. 11. A method of copy protecting encoded digital data, wherein the encoded digital data has been subjected to error correcting encoding and is arranged in codewords, each codeword containing data bytes and parity values, the method comprising altering the values of the data in a plurality of data bytes in a selected codeword, to form an altered codeword, the nature of the altered values and the 20 number of data bytes altered being chosen to render the altered codeword uncorrectable, the method being for copy protecting digital data encoded for application to a CD, wherein four or more data bytes in selected C2 codewords are altered.

25. 12. A method as claimed in Claim 11, wherein parity bytes of each C1 codeword incorporating a said altered data byte are additionally altered to render the said C1 codewords uncorrectable.

30. 13. A method as claimed in Claim 11, wherein the encoded digital data is audio data, and wherein the values of the audio data bytes are altered such that they will provide audible clicks.

14. A data file containing information for enabling encoded digital data to be copy protected, the encoded digital data being arranged in codewords containing

“Multiple Samples”

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data bytes and parity values, the information contained in the data file enabling the values of a plurality of data bytes in each of a number of selected codewords to be altered, where the nature of the altered values and the number of data bytes in each altered codeword are chosen to render the altered codeword uncorrectable.

- 5 15. A data file as claimed in Claim 14, which is arranged to be executable.
- 10 16. A medium on which copy protected encoded digital data has been stored, wherein the medium carries the encoded digital data arranged in codewords containing data bytes and parity values, wherein each of a plurality of data bytes in each of a number of selected codewords have had their values altered, the nature of the altered values and the number of data bytes altered in each altered codeword having been chosen to render the altered codeword uncorrectable.
- 15 17. A medium as claimed in Claim 16, wherein the values of the data in at least four data bytes in the selected codeword are altered.
- 20 18. A medium as claimed in Claim 16, wherein the values of the data in at least five data bytes in the selected codeword are altered.
- 25 19. A medium on which copy protected encoded digital data has been stored, wherein the medium carries the encoded digital data arranged in codewords containing data bytes and parity values, wherein each of a plurality of data bytes in each of a number of selected codewords have had their values altered, the nature of the altered values and the number of data bytes altered in each altered codeword having been chosen to render the altered codeword uncorrectable, and wherein one or more higher order bits of each data byte of the plurality of data bytes are altered to be representative of an unusually large magnitude, and the remaining lower order bits of each data byte of the plurality of data bytes are altered such that, on decoding, the altered codeword will generate an uncorrectable error identifying syndrome.
- 30 20. A medium as claimed in Claim 19, wherein the most significant nibble of each data byte of the plurality of data bytes is altered to be representative of an unusually large magnitude, and wherein the least significant nibble of each data

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byte of the plurality of data bytes is altered to generate the uncorrectable error identifying syndrome on decoding.

21. A medium on which copy protected encoded digital data has been stored,
5 wherein the medium carries the encoded digital data arranged in codewords containing data bytes and parity values, wherein each of a plurality of data bytes in each of a number of selected codewords have had their values altered, the nature of the altered values and the number of data bytes altered in each altered codeword having been chosen to render the altered codeword uncorrectable, and
10 wherein the nature of the altered values and the number of data bytes altered are chosen such that, on decoding, the altered codeword will generate an uncorrectable error identifying syndrome.
22. A medium as claimed in Claim 21, wherein the syndrome is one which, in the
15 decoding process, causes an error locator polynomial to have no roots.
23. A medium on which copy protected encoded digital data has been stored, wherein the medium carries the encoded digital data arranged in codewords containing data bytes and parity values, wherein each of a plurality of data bytes in
20 each of a number of selected codewords have had their values altered, the nature of the altered values and the number of data bytes altered in each altered codeword having been chosen to render the altered codeword uncorrectable, and wherein a corrupting vector is formed which has the same format as the selected codeword, the corrupting vector having altered values imposed on a codeword in
25 which all of the data values are zero, and further comprising XORing the corrupting vector with the selected codeword whereby values in the selected codeword are XORed with the values in the corrupting vector to form the uncorrectable altered codeword.
- 30 24. A medium as claimed in Claim 23, wherein a look up table containing a number of said corrupting vectors is provided, each of the corrupting vectors in the look up table being known to produce an uncorrectable error identifying syndrome.

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25. A medium on which copy protected encoded digital data has been stored, wherein the medium carries the encoded digital data arranged in codewords containing data bytes and parity values, wherein each of a plurality of data bytes in each of a number of selected codewords have had their values altered, the nature 5 of the altered values and the number of data bytes altered in each altered codeword having been chosen to render the altered codeword uncorrectable, wherein the medium is a CD and the encoded and copy protected digital data has been applied onto the CD, wherein four or more data bytes in selected C2 codewords have been altered.

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26. A CD as claimed in Claim 25, wherein parity bytes of each C1 codeword on the CD incorporating a said altered data byte have been additionally altered to render the said C1 codewords uncorrectable.

15 27. A CD as claimed in Claim 25, wherein the encoded digital data is audio data, and wherein the values of the audio data bytes have been altered such that they will provide audible clicks.

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